

Section 5

Prevention and Mitigation Activities Associated with Floatable Debris



Plastic Pellet Containment
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Section 5: Prevention and Mitigation Activities Associated with Floatable Debris

This section provides examples of prevention and mitigation activities associated with floatable debris, including recommendations to industry regarding plastic pellets, permit conditions, TMDLs, and selected National Estuary Program (NEP) mitigation activities.

5.1 Plastic Pellet Containment

The Society of the Plastics Industry, Inc. (SPI) worked with EPA to characterize process operations in the plastics industry and to identify potential sources of pellet losses to the environment. SPI is the major national trade association representing the plastics industry. The release of pellets from pellet producers, transporters/contract packagers, and processors can be controlled through actions identified in an EPA study on plastic pellets in the aquatic environment (USEPA, 1992a). Recommendations to the plastics industry included the following (USEPA, 1993b):

- Adopt the SPI 1991 Pellet Retention Environmental Code and the 1992 Processor's Pledge. The code is a commitment to total containment of plastic pellets. It encourages source reduction activities to prevent releases and suggests ways to recapture spilled pellets.
- Educate employees and train them to minimize pellet spillage and loss.
- Install pellet containment systems or use portable containment apparatuses.
- Institute pellet containment activities during routine plant operations.
- Recycle spilled pellets.
- Improve the quality and frequency of pellet spill cleanup procedures.
- Use puncture-resistant packaging and minimize the use of valved bags.
- Inspect shipping vehicles (e.g., rail hopper cars, bulk trucks, freight trucks) before and after loading and offloading of pellets.
- Inspect shipping containers before and after loading and offloading of pellets.

To obtain a copy of the complete report, *Plastic Pellets in the Aquatic Environment: Sources and Recommendations* (EPA 842-B-92-010), contact the National Service Center for Environmental Publications at; P.O. Box 42419, Cincinnati, OH 45242-0419, (800) 490-9198, ncepiml@one.net, www.epa.gov/ncepihom/.

5.2 Combined Sewer Overflow Permit Conditions for Floatable Debris

New York and New Jersey are coordinating a CSO and storm water permit system. It will address the permit programs applying to CSO discharges, efforts to reduce CSOs, control of solids and floatable debris, and issues relevant to interstate water planning coordination (USEPA, 1998b). Additional information about the permit system is available from the New Jersey

Department of Environmental Protection (NJDEP) at www.state.nj.us/dep/index.html or from the New York State Department of Environmental Conservation (NYSDEC) at www.dec.state.ny.us.

5.3 Navesink River Nonpoint Source Program

The Navesink Watershed Management Project, established in New Jersey, began in 1981 as a major interagency initiative involving environmental groups, civic organizations, and federal, state, county, and municipal agencies. The purpose of the project is to reduce nonpoint source bacterial pollution in the Navesink estuary, specifically from boats, agricultural runoff, and urban and suburban runoff (Scro and Eisele, 1993). To control pollution from boats and marinas, several organizations have taken the lead in determining the extent of recreational boating, the infrastructure needed to reduce related sewage, and the need for education to change the behavior of boaters and marina operators. Other organizations have successfully advocated statutory changes, planning, and other measures to deal with boating-related pollution (Chess and Gibson, 2000).

The Navesink Project has shown that nonpoint source programs need to be flexible and innovative, and developed on a site-specific basis. Programs must be created by the parties that will play an integral role in resource management in order to gain support (USEPA, 1995). The Harbor Estuary Program has funded a study to examine the effectiveness of certain identified best management practices (e.g., regular catch basin maintenance, street vacuuming, and storm water filtration screens). Water quality is monitored before and after implementation (USEPA, 1998b).

More information about the Navesink Project is available in the *Navesink Watershed Management Effort* (Chess and Gibson, 2000), *Navesink River Water Monitoring Project* (Scro and Eisele, 1993), or EPA's *Nonpoint Source News Notes* (USEPA, 1995).

5.4 Debris-Impaired Waters and Total Maximum Daily Loads

A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and meet water quality standards, along with an allocation of that amount to the pollutant's sources. Section 303 of the CWA establishes the TMDL program. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (i.e., swimming), and aquatic life support (i.e., fishing), and the scientific criteria to support each use. Calculation of a TMDL includes summing the allowable loads of a single pollutant from all contributing point and nonpoint sources. TMDLs apply the standard by setting the maximum amount of pollutants and then allocating that load between point and nonpoint sources. In addition, a TMDL must include a margin of safety based on the uncertainty in the calculations and must consider the seasonality of the particular pollutant.

On their 1998 303(d) lists, California, New York, Alaska, Washington, and Connecticut identified a total of 62 waterbodies as water quality impaired because of debris, trash, floatables and/or large woody debris. California has developed 3 TMDLs for trash. For more information about the TMDL program, visit the website at www.epa.gov/owow/tmdl.

5.5 National Estuary Programs

The National Estuary Program (NEP) was established in 1987 by amendments to the Clean Water Act. The purpose of the NEP is to identify, restore, and protect nationally significant estuaries of the United States. Unlike traditional regulatory approaches to environmental protection, the NEP targets a broad range of issues and involves local communities in the process. It focuses on improving water quality in estuaries and on maintaining the integrity of the whole system—its chemical, physical, and biological properties and its economic, recreational, and aesthetic values (USEPA, 2001a).

The NEP is designed to encourage local communities to be responsible for managing their estuaries. Each program consists of representatives from Federal, state, and local government agencies responsible for managing the estuary's resources, as well as community members such as citizens, educators, researchers, and business leaders. Stakeholders work together to identify the estuary's problems, develop specific actions to address those problems, and create and implement a formal management plan to restore and protect the estuary. There are currently 28 NEP programs. More information about the NEP is available at www.epa.gov/owow/estuaries.

5.5.1 New York-New Jersey Harbor Estuary Program

EPA authorized the New York-New Jersey Harbor Estuary Program (HEP) in 1987. The program is a multiyear effort to develop and implement a plan to protect, conserve, and restore the estuary. Program participants include scientists, citizens, business interests, environmentalists, representatives from local, state, and Federal environmental agencies, and others (HEP, 1996).

One component of HEP's Comprehensive Conservation and Management Plan (CCMP) is the management of floatable debris. The goals of the floatable debris management plan are:

- To eliminate floatables-related beach closures.
- To prevent adverse impacts on commercial and recreational boating from floatable debris.
- To prevent adverse impacts on coastal species resulting from floatable debris.

To achieve these goals, HEP decided to address the floatable debris problem with two tracks. The fast track, which was developed and implemented in 1989, included the following specific actions to clean up existing debris after it had entered the system:

- *Surveillance.* The New Jersey Department of Environmental Protection (NJDEP), EPA, and the U.S. Coast Guard (USCG) conduct helicopter and aircraft patrols of the harbor to look for slicks of floating debris. There are also daily vessel patrols of the harbor by EPA and USCG, weekly patrols of the New York Bight by USCG, and daily overflights of the Bight by NJDEP.
- *Regular Cleanups.* The U.S. Army Corps of Engineers (USACE) has an ongoing program to capture loose timbers and other navigation hazards in the harbor. USACE cleans up floatable slicks, using specially designed nets to collect small debris. Cleanups are regularly scheduled at the Verrazano Narrows and Arthur Kill (locations where garbage slicks tend to form) during and following new moon and full moon high tides and after storms that cause CSOs. During the summer bathing season (mid-May to mid-September), cleanups occur daily.
- *Nonroutine Cleanups.* USACE attempts to capture additional slicks in the harbor when conditions are brought to its attention. State coordinators notify local authorities and beach operators of potential wash-ups.
- *Communications Network.* EPA coordinates a reporting network and cleanup activities. EPA, New York State Department of Environmental Conservation, NJDEP, New York City Department of Sanitation, USACE, and USCG are all on-call 24 hours a day. Hotline numbers are available for citizens' telephone calls.

The longer-term strategy, which supplements the short-term action plan and reduces the amount of debris entering the system, consists of the following:

- Continue and improve the successful short-term floatables action plan.
- Develop and implement a long-term, source-oriented strategy to reduce the amount of floatables entering the ecosystem.
- Take action as soon as there are commitments and mechanisms in place for implementation.
- Take additional actions, over time, as mechanisms and commitments are developed.
- Expand public education and outreach efforts to foster lifestyle changes that will reduce the public's contribution to the floatable debris problem.

The following are the objectives and recommendations of the HEP Floatables Plan:

- Continue and enhance implementation of the short-term floatables action plan.
- Expand the USACE Harbor Drift Removal Program without compromising key habitat.
- Implement beach and shoreline cleanups.
- Assess and control landfill and solid waste practices to minimize aerial sources of floatables.
- Communicate impacts of marine debris and appropriate disposal practices.
- Reduce floatable loadings from CSOs, storm water discharges, and other nonpoint sources.

Also, pilot projects have been established at marinas in New York and New Jersey to encourage proper handling and recycling of marine debris. This campaign, a model to be replicated at marinas throughout the New York-New Jersey Harbor Estuary, discourages tossing trash

overboard, encourages recycling and waste minimization, educates boaters about the problems of marine pollution, fosters appreciation of local marine areas, and creates an awareness of the Harbor and Long Island Sound Estuary Programs (USEPA, 1998b).

For more information about the New York-New Jersey HEP, refer to www.harborestuary.org. The CCMP is available at www.harborestuary.org/mgmt.htm. Information about the successes and future challenges of the program is available from *Successes and Challenges: Highlights of Program Accomplishments and Challenges for the Future*, which is available at www.hudsonriver.org/hep/pdf/sc.pdf. A list of HEP contacts is available from www.harborestuary.org/contacts.htm.

5.5.2 Long Island Sound Study

The Long Island Sound Study (LISS) is a cooperative effort involving researchers, regulators, user groups, and other concerned organizations and individuals. This partnership is designed to protect and improve the health of the sound by implementing the 1994 CCMP for the sound (LISS, 2001). The floatable debris part of the plan seeks to reduce the flow of litter from its major sources, and to collect and pick up litter once it is in the sound. Source control is the most effective strategy to combat littering and improper disposal. To reduce the flow of floatable debris into the sound, management actions center on the following (LISS, 1994):

- *Combined sewer overflow abatement and storm water management.* New York City has begun to implement a CSO abatement program for controlling the discharge of pathogens. Connecticut will implement its long-term CSO abatement program to manage sewer areas affecting Long Island Sound. New York and Connecticut are implementing statewide storm water permit programs to manage storm water from industrial and construction activities. Both states are also using their nonpoint source programs to control pathogen discharges to the sound. Each of these programs will also substantially reduce the amount of floatable debris entering the sound.
- *Education.* The New York Sea Grant Extension Program, Connecticut Sea Grant Marine Advisory Program, and LISS have organized volunteers from civic associations, schools, and environmental and youth groups to paint messages on storm drains, such as “Don’t Dump—Drains to Long Island Sound.” Another program, “Clean Streets/Clean Beaches” is an anti-litter program launched in April 1992 by a coalition of public and private groups in New Jersey and New York. The goal of this program is to make people aware that street debris can ultimately be found on beaches and that they should not litter.

According to the 1998 CCMP Tracking Survey, 2,685 New York volunteers collected more than 35,846 pounds of trash from the shoreline along the sound during 1998. In Connecticut, approximately 750 volunteers removed more than 7,000 pounds of trash from 20 miles of shore. Additionally, between 1991 and 1998 more than 18,650 storm drains have been stenciled with the “Don’t Dump—Drains to Long Island Sound” message and more than 3,330 drains in New York have been stenciled with a bilingual (Spanish/English) “Clean Streets = Clean Beaches” slogan (LISS, 1998).

More information about LISS is available at www.epa.gov/region01/eco/lis. The CCMP is available at www.epa.gov/region01/eco/lis/plan.html. For more general information, contact the U.S. EPA Long Island Sound Office, Stamford, Government Center, 888 Washington Avenue, Stamford, CT 06904-2152, (203) 977-1541 or the Marine Sciences Research Center, SUNY Stony Brook, Stony Brook, NY 11794-5000, (516) 632-7666. A more detailed list of contacts is available at www.epa.gov/region01/eco/lis/contacts.html.

5.5.3 San Juan Bay Estuary

The San Juan Bay Estuary (SJBE) system was nominated for the National Estuary Program on April 16, 1992. It is the only NEP located in a tropical geographic region and outside the mainland United States. The goals of the SJBE Program are to (SJBE Program, 2000):

- Establish a comprehensive water quality policy. This policy will ensure the integrity of marine resources and terrestrial ecosystems while supporting human activities in the system.
- Develop an effective administrative and regulatory framework for the SJBE system that will serve as a model for other estuary systems, especially for tropical systems.
- Optimize the social, economic, and recreational benefits associated with the SJBE system.
- Prevent further degradation and improve the system’s water quality to help ensure healthy terrestrial and aquatic communities and social well-being.
- Minimize the health risks associated with direct human contact with the surface waters and the consumption of fish and shellfish.

The objectives of the SJBE Program are to:

- Identify the major stressors impacting the system and establish their relative importance.
- Develop action plans to remediate problems identified in the system.
- Conserve and enhance the integrity of the known, highly valuable natural resources in the system, and restore, to the extent possible, areas that have been adversely affected.
- Address the major concerns of citizens and user groups regarding the quality of the system.
- Promote the public’s awareness regarding estuarine resources and involvement in the development of an effective management plan for the system.

- Develop a hydrological model of the system to determine effective alternatives to improve circulation and predict the hydrological impacts of future development.

To prioritize issues of concern and to develop proposed solutions to improve the health of the estuary, the SJBE Program developed four Action Plans. The goal of the Aquatic Debris Action Plan is to improve habitat quality and enhance the aesthetic, recreational, and economic values of the SJBE by ensuring that the watershed is free of aquatic debris. The first objective of the plan is to significantly reduce the amount of aquatic debris that reaches all estuarine waters. This is to be accomplished by the following actions:

- Develop and implement community-based solid waste management and recycling programs in coordination with municipalities.
- Continue to implement the Action Plan Demonstration Project developed in Piñones, Loíza.
- Continue the annual aquatic debris cleanup event held in Islote de la Guachinanga.
- Conduct periodic aquatic debris cleanup activities at suggested SJBE locations.

The second objective of the plan is to develop, promote, and implement voluntary compliance and pollution prevention initiatives. This can be accomplished by establishing Solid Waste Pollution Prevention Pilot Programs at different SJBE locations. The third objective of the plan is to strengthen the enforcement of littering laws and regulations by:

- Implementing measures to detect, correct, and control illegal dumping activities and enforcing Puerto Rico's Anti-Littering Law (Law No. 11 of 1995).
- Enforcing the Law for the Management of Used Tires (Law No. 171) and other regulatory measures related to the illegal dumping of used tires within the estuary system and its drainage basin.

More information is available from the San Juan Bay Estuary Program Office, U.S. Army Corps of Engineers Building, 400 Fernandez Juncos Avenue, Second Floor, San Juan, Puerto Rico, 00901-3299, (787) 725-8162. Edna Villanueva, the Technical Director, may be contacted at edna.villanueva@usace.army.mil.

5.5.4 Santa Monica Bay Restoration Project

The Santa Monica Bay Restoration Project (SMBRP) is a group of environmentalists, scientists, government representatives, business people, and members of the public. It was formed in 1988 to develop a restoration plan for the bay. The mission of SMBRP, one of the first NEPs, is to create a comprehensive plan to ensure the long-term health of Santa Monica Bay, which is adjacent to the heavily urbanized, second-most-populous region in the United States. Among a variety of projects and programs addressing various issues related to the bay, SMBRP has educated beachgoers about marine debris and provided stations for depositing and recycling trash. SMBRP also has acted as the Los Angeles County coordinator for Coastal Cleanup Day,

tripling the number of cleanup volunteers. The Project encourages using management practices such as handling, storing, and disposing of materials and wastes properly to prevent them from entering storm drains (SMBRP, no date). More information is available at www.smbay.org or from the Santa Monica Bay Restoration Project, 320 West Fourth Street, 2nd Floor, Los Angeles, CA 90013, (213) 576-6615.